

A2
--Fig. 1B is a scanning tunneling microscopy image of the surface of a thin (~ 10 nm), semitransparent, obliquely deposited (50E from normal) gold film prepared by electron beam evaporation onto a glass substrate at 0.02 nm s⁻¹. A layer of titanium (~ 200 nm, also deposited obliquely) was used to promote adhesion between the gold and the glass. The vertical and horizontal dimensions of the image are 300 nm and 500 nm, respectively.

The gray scale of contrast represents a height range of 0 to 5 nm.--

(3). At page 16, please delete the paragraph (lines 17-24) and replace it with the following:

A3
--The term "alkyl" is used herein to refer to a branched or unbranched, saturated or unsaturated, hydrocarbon radical having from 1-30 carbons and preferably, from 4-20 carbons and more preferably from 6-18 carbons. When the alkyl group has from 1-6 carbon atoms, it is referred to as a "lower alkyl." Suitable alkyl radicals include, for example, structures containing one or more methylene, methine and/or methyne groups. Branched structures have a branching motif similar to i-propyl, t-butyl, i-butyl, 2-ethylpropyl, etc. As used herein, the term encompasses "substituted alkyls."--

(4). At page 17, please delete the paragraph (lines 8-10) and replace it with the following:

A4
--The term "arylalkyl" is used herein to refer to a subset of "aryl" in which the aryl group is linked to or integrated into R¹ or R² shown in Formulae 1 - 4 by an alkyl group as defined herein.--

(5). At page 17, please delete the fourth paragraph (lines 18-20) and replace it with the following:

A5
--"Substituted arylalkyl" defines a subset of "substituted aryl" wherein the substituted aryl group is linked to or integrated into R¹ or R² shown in Formulae 1 - 4 by an alkyl group as defined herein.--

(6). At page 18, please replace the second paragraph (lines 4-7) with the following:

A6
--As used herein, the term "acylamino" describes functional groups of the general formula $RC(O)NR'$, wherein R' is a lower alkyl group and R represents a component of either R^1 or R^2 shown in Formulae 1 - 4 or an alkyl group, as defined herein, attached to either R^1 or R^2 .--

A7
(7). At page 18, please replace the third paragraph (lines 8-14) with the following:

A7
--The term "acyloxy" is used herein to describe an organic radical derived from an organic acid by the removal of the acidic hydrogen. Simple acyloxy groups include, for example, acetoxy, and higher homologues derived from carboxylic acids such as ethanoic, propanoic, butanoic, etc. The acyloxy moiety may be oriented as either a forward or reverse ester (*i.e.* $RC(O)OR'$ or $R'OC(O)R$, respectively), and may be integral to R^1 or R^2 or a substituent of R^1 or R^2 , wherein R comprises a portion of the ester derived from R^1 or R^2 shown in Formulae 1 - 4.--

A7
(8). At page 18, please replace the fourth paragraph (lines 15-18) with the following:

A7
--As used herein, the term "aryloxy" denotes aromatic groups which are linked to R^1 or R^2 or are a constituent of R^1 or R^2 shown in Formulae 1 - 4, directly through an oxygen atom. This term encompasses "substituted aryloxy" moieties in which the aromatic group is substituted as described above for "substituted aryl."--

A9
(9). At page 18, please replace the fifth paragraph (lines 19-23) with the following:

A9
--As used herein "aryloxyalkyl" defines aromatic groups attached, through an oxygen atom to an alkyl group, as defined herein. The alkyl group is linked to or integrated into R^1 or R^2 as shown in Formulae 1 - 4 by an alkyl group as defined herein shown in Formula 1 - 4. The term "aryloxyalkyl" encompasses "substituted aryloxyalkyl" moieties in which the aromatic group is substituted as described for "substituted aryl."--

A9
(10). At pages 18 and 19, please replace the last paragraph starting on page 18 (lines 30-31) and ending on page 19 (lines 1-2) with the following:

24/10 --The term "unsaturated cyclic hydrocarbon" is used to describe a non-aromatic group with at least one double bond, such as cyclopentene, cyclohexene, etc. and substituted analogues thereof. These cyclic hydrocarbons can be single- or multi-ring structures.--

(11). At page 19, please replace the third paragraph (lines 13-15) with the following:

All --"Heteroarylalkyl" defines a subset of "heteroaryl" wherein an alkyl group, as defined herein, links the heteroaryl group or integrates it into R¹ or R² shown in Formulae 1 - 4.--

A12 (12). At page 19, please replace the fifth paragraph (lines 23-25) with the following:

A13 --"Substituted heteroarylalkyl" refers to a subset of "substituted heteroaryl" as described above in which an alkyl group, as defined herein, links the heteroaryl group or integrates it into R¹ or R² shown in Formulae 1 - 4.--

A14 (13). At page 19, please replace the sixth paragraph (lines 26-30) with the following:

A15 --The term "heterocyclic" is used herein to describe a saturated or unsaturated non-aromatic group having a single ring or multiple condensed rings from 1-12 carbon atoms and from 1-4 heteroatoms selected from nitrogen, sulfur or oxygen within the ring. Such heterocycles are, for example, tetrahydrofuran, morpholine, piperidine, pyrrolidine, etc.--

(14). At page 20, please replace the second paragraph (lines 3-5) with the following:

A14 --The term "heterocyclicalkyl" defines a subset of "heterocyclic" wherein an alkyl group, as defined herein, links the heterocyclic group or integrates it into R¹ or R² shown in Formulae 1 - 4.--

A15 (15). At pages 79 and 80, please replace the last paragraph on page 79, beginning on page 79 (lines 29-34) and ending on page 80 (lines 1-5) with the following:

--In contrast to grating B, the diffraction of light by the grating in Fig. 15C (grating C) was polarization insensitive. When grating C was viewed under crossed polars,

either uniformly bright stripes (Fig. 18D polarization of incident light between x and y) or uniformly dark stripes (polarization of incident light along x or y) was observed. The boundaries between stripes, which correspond to regions in which two different distortions of the mesogens meet, were visible in the optical micrographs (dark lines in Fig. 18D). The lack of measurable contrast between adjacent stripes for all polarizations of incident light is consistent with the mesogenic layer structure of grating C. A similar type of layer structure has been reported by Chen and co-workers who use a two-step rubbing process (Chen *et al.*, *Appl. Phys. Lett.* **67**, 2588 (1995)).--

(16). At page 80, please replace the third paragraph (lines 15-32) with the following:

--Tuning of these patterned mesogen structures was possible by using electric fields. When gold surfaces supporting SAMs were used as electrodes, an electric field could be applied perpendicular to the surfaces. Reversible application of the electric field reorients the mesogens and thus modulated the intensity of light diffracted from the gratings (Fig. 19E). In-plane electric fields were also used (in-plane switching refers to the use of an electric field that is applied parallel to the surface of the cell). Devices based on in-plane switching of a mesogen have been used in FPDs with wide viewing angles (Ohe *et al.*, *Appl. Phys. Lett.* **69**, 623 (1996); Ohta *et al.*, *IEICE (Inst. Electron. Inf. Commun. Eng.) Trans. Electron.* **E79-C**, 1069 (1996)) to reorient these patterned mesogenic structures. We observe SAMs to be stable upon application of an electric field across a cell filled with mesogen. Past studies have reported electrochemical desorption of SAMs in aqueous solutions of electrolytes (Widrig *et al.*, *J. Electroanal. Chem.* **310**, 335 (1991); Waliquid crystalzak *et al.*, *Langmuir* **7**, 2687 (1991)). In general, the alignment of mesogens on SAMs formed from long-chain alkanethiols is stable over months. Stability over years can be achieved by using polymerizable SAMs (T. Kim *et al.*, *Langmuir* **12**, 6065 (1996)) or mesogens doped with alkanethiols or reducing agents to prevent oxidative degradation of the SAMS.--

IN THE DRAWINGS

The drawings include a single typographical error on page 2 of 25 of the formal drawings. "Fig. 1B" should be labeled --Fig. 1C--. A redlined page 2 of the formal drawings has